

REMARKS

Objections to the Specification

The 12/13/2004 office action objected to the specification for "missing content labels", without any citation to any section of the patent statute or rules that requires "content labels". The undersigned assumes that the examiner was referring to sections headings. It is noted that 37 C.F.R. § 1.77, which sets forth the recommended order of specification sections, makes no requirement for section headings; it merely says they "should" be included. The only required section heading the undersigned is aware of is that in 37 C.F.R. § 1.72(b), requiring a heading for the abstract, and the application contains such a heading. It is respectfully submitted that the specification complies with all requirements of the patent statutes and rules in this regard.

Objections to the Claims

The 12/13/2004 office action objected to dependent claim 9 as failing to further limit the claim on which it depends. This was a typographical error in a preliminary amendment made for the purpose of eliminating multiple dependencies. Claim 9 has been canceled.

Claim Rejections - 35 U.S.C. § 112

The 12/13/2004 office action rejected claims 5 and 10 as indefinite based on their inclusion of phrases including "notably". The present amendment deletes these phrases.

Claim Rejections - 35 U.S.C. § 102

The 12/13/2004 office action rejected claims 1-4, 6, 8, and 9 and 10 under 35 U.S.C. 102(e) as anticipated by U.S. Patent No. 6,437,338 to Hoffman. Hoffman discloses an x-ray detector in which the array is segmented into subarray regions that include detector elements from several rows and several columns, for instance, a 36x36 array 100 that is segmented into 36 6x6 regions 102. All of the detector elements in each region 102 are connected by a common data line to one of 36

amplifiers 106. Each of the detector elements in a region 102 is coupled to one of 36 control lines 108, and each control line 108 is coupled to the same corresponding detector element in each region 102. Hoffman, column 2, lines 1-9, 40-53. Hoffman distinguishes such a structure from prior art systems in which the detector elements are read out one line at a time and at a fixed rate. According to Hoffman, the problem with such a readout system is that the spatial resolution is fixed, and the exposure must be limited to avoid saturation of the detector elements receiving unattenuated x-rays. Hoffman, column 2, lines 23-67.

Hoffman's principal purpose appears to be variable spatial resolution, which enables images to be obtained with constant but selectable spatial resolution or with spatial resolution that varies in different parts of the array. Hoffman, column 2, line 54 - column 3, line 60. For instance, high spatial resolution may be desired in areas of a patient being imaged, and low spatial resolution may be acceptable in background areas. Hoffman, column 3, lines 18-22. By providing high spatial resolution in the region of interest, the region of interest is read at a slower rate, whereas the background regions that are not of interest are read at a lower spatial resolution and at a higher rate. Hoffman, column 3, lines 22-30. Because the higher rate, lower spatial resolution data is not of interest, much of it may be ignored or dumped. Hoffman, column 3, lines 22-30.

In contrast, the present invention is directed to providing temporal resolution that varies in different parts of the array, and, in particular, to providing high temporal resolution in regions of interest within the imaged area. High temporal resolution may be desired, for instance, when monitoring the placement of a catheter or needle. Application, page 2, lines 3-5 and 26-32.

The office action rejected claim 1 as anticipated on the basis of Hoffman's disclosure at column 4, line 61 - column 5, line 1. The office action characterizes this passage as explaining that selected regions, 102 in fig. 3, corresponding to quantities of image points, are read out at different

rates. What Hoffman shows in the drawings and describes, other than in the cited passage, is a system in which at each step the scan sequencer selects a sequence of geometrically corresponding elements in each of the 36 regions 102. The cited passage alleges that the apparatus illustrated in Hoffman can be modified in order to read out different regions at different rates. The cited passage does not show such a modification, and its description of the modifications appears inadequate to make modifications that would operate as stated. As with Fermat's last theorem, stating that there is a solution to a problem does not necessarily enable the solution to be obtained by those skilled in the art. It is respectfully submitted that the stated rejection was inadequate under 35 U.S.C. § 102.

In any event, claim 1 has been amended with limitations regarding identifying a region of interest for which higher temporal resolution is desired and reading out in that region at a higher rate. It is respectfully submitted that Hoffman does not anticipate the claim as amended. Such limitations have been included in amended independent claim 8, which is patentable for the same reasons. New independent claim 14 relates to imaging with constant spatial resolution but differing temporal resolution in areas of the image, and is believed to be patentable over Hoffman on that basis.

Regarding the dependent claims, it is respectfully submitted that there is no disclosure in Hoffman of assigning image points alternately to groups having different scanning rates, or of groups of image points that are read at different rates being overlapping. For these reasons, claims 3, 4, 12, 13, 16, and 17 further distinguish over Hoffman.

It is respectfully submitted that the foregoing amendments place the application in condition for allowance. Reconsideration and further examination is requested, and a notice of allowance is earnestly solicited.

Respectfully submitted,



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